

WHAT IS CLAIMED IS:

1. An optical communication system comprising an optical transmission line disposed between a transmitting end and a receiving end, for transmitting signals of plural channels, and one or more nodes each arranged at a predetermined position of said optical transmission line and adding signals of a predetermined channel to said optical transmission line,

wherein among signal channels which can be added to said optical transmission line, each of said nodes adds signals of a signal channel at which an absolute value of previously calculated accumulated-dispersion from said node itself to said receiving end becomes smallest, to said optical transmission line.

2. An optical communication system according to claim 1, wherein each of said nodes includes a node control system which specifies signal channels which can be added to the optical transmission line, and among said specified signal channels, assigns a signal channel at which the absolute value of accumulated-dispersion from said associated node to said receiving end becomes smallest, to said associated node.

3. An optical communication system according to claim 1, further comprising a centralized control system which calculates wavelength dependency of accumulated-dispersion up to said receiving end for each

of said nodes, and assigns optimum signal channels to said nodes in descending order of the absolute value of the accumulated-dispersion,

wherein said centralized control system specifies  
5 signal channels which can be added to said optical transmission line for every node selected as an assignment object, and among said specified signal channels, assigns a signal channel at which the absolute of the  
10 accumulated-dispersion from said selected node itself to said receiving end becomes smallest, to said selected node.

4. An optical communication system according to claim 1, further comprising a dispersion compensator arranged at a predetermined position of said optical transmission line.

15 5. A method of assigning signal channels which assigns a predetermined signal channel to be added to an optical transmission line to each of nodes in an optical communication system, said optical communication system comprising: said optical transmission line disposed between a transmitting end and a receiving end and transmitting signals of plural channels; and one or more nodes each arranged at a predetermined position of said optical transmission line and adding signals of a predetermined channel to said optical transmission line,  
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25 wherein to each of said nodes, among signal channels which can be added to said optical transmission line, a signal

channel at which an absolute value of previously calculated accumulated-dispersion from said node itself to said receiving end becomes smallest is assigned.

6. A method according to claim 5, wherein wavelength dependency of accumulated-dispersion up to said receiving end is calculated for each of said nodes,

said nodes are successively selected as an assignment object in descending order of an absolute value of the accumulated-dispersion thereof,

signal channels which can be added to said optical transmission line are specified for every node selected as said assignment object, and

among said specified signal channels, a signal channel at which an absolute value of the accumulated-dispersion from said selected node to said receiving end becomes smallest is assigned to said selected node.